

Rushton WF, Vakkalanka JP, Moak J, Charlton NP. Negative Predictive Value of Excluding Embedded Snake Foreign Body by Ultrasound. Wilderness Environ Med. 2015 Jun;26(2):227-31.

### **OBJECTIVE:**

Numerous reputable sources for healthcare providers advocate routine imaging to rule out an embedded tooth or fang after a snake bite. The objective of this study was to determine whether these foreign bodies can be reliably excluded by bedside ultrasonography.

### **METHODS:**

All emergency medicine (EM) residents and faculty at a single institution were invited to participate. Two sets of 5 ultrasound gel phantoms were prepared using a method previously validated to have the same density as human tissue. In the first set of 5 phantoms, 1 snake fang was embedded to simulate a retained foreign body. Similarly, in the second set of 5 phantoms, 1 snake tooth was also embedded. Participants were asked to identify the presence or absence of a foreign body in each phantom using bedside ultrasonography. Year of training and confidence in excluding a snake foreign body were also recorded.

### **RESULTS:**

Each participant (n=27) performed ultrasound imaging on 10 phantoms for a total of 270 samples. Range of experience included postgraduate year 1 (25.9%), postgraduate year 2 (29.6%), postgraduate year 3 (33.3%), and graduates of EM residency (11.1%). The sensitivity and negative predictive value for ruling out an embedded fang was 92.6% and 98.1%, respectively. The sensitivity and negative predictive value for ruling out an embedded tooth was 77.8% and 93.7%, respectively. Among all the phantoms, there was a sensitivity of 85.2% and a negative predictive value of 96%.

### **CONCLUSION:**

Bedside ultrasonography performed by an EM physician is a feasible option to rule out embedded foreign bodies after a snake bite if imaging is warranted.